



APIARIUM;

OR A

DISCOURSE

OF

BEES.

BODLEIANA PHILOTH

Tending to the best Way of IMPROVING them, and to the Discovery of the Fallacies that are imposed by some, for private Lucre, on the Credulous Lovers and Admirers of these Insects.

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MDCLXXVI.

To the

READER.

After ſo many worthy Authors that have publickly imparted ſo much of Art and Ingenuity to the World, concerning the ordering and governing this ſmall Animal the Bee; *and eſpecially Mr.* Butler, *whoſe Treatiſe of the* Feminine Monarchy *hath been judged by Perſons of Learning to be the moſt complete that ever was written of any one Natural Subject, it will not be expected that any one ſhould exceed him, as to the general Scope of his Treatiſe. But ſeeing that divers Perſons have been for theſe many years, and yet are willing to endeavour an Improvement and Advancement of* Bees, *to make them more profitable, and bring*

them into greater eſteem amongſt us than formerly; and that by novel Ways and Methods of Ordering them, ſome Perſons of very good Quality and Parts, have taken a great deal of pains and uſed much skill to obſerve the Nature of theſe Curious, Induſtrious and Profitable Inſects, not thinking it an undervaluing to their Reputation, although

Slight is the Theme, yet not the Glory ſlight, [*Virgil.*]

Others on the contrary, wanting that Reaſon and Experience they pretended to, have abuſed the World with their fictitious Notions concerning Bees, *which have made a greater* Humm *than all the Bee-books that have been publiſhed before. That humming noiſe was the occaſion of my reviewing thoſe Obſervations I had formerly made concerning theſe* ſmall, profitable, laborious, loyal, nimble, cunning, induſtrious *and* reſolute *Animals; ſo reſolved, that they cannot be compelled to digreſs from their own natural Inclinations, nor yet reſtrained from their prodigious Encreaſe, by which they preſerve their Colonies, which otherwiſe would ſuddenly be extinguiſhed: So profitable and laborious, that by the ordi-*

ordinary Methods of ordering them, they fully recompence all your Care and Coſt you need to beſtow on them with a ſufficient overplus; and ſo nimble and cunning, that they are not to be plaid withal, nor governed by ſuch that know not how to govern themſelves nor their Pens: But of any Creatures whatſoever the moſt eaſily managed and improved, if you proſecute their own ways or intentions that Nature prompts them to, as many poor and ignorant Country Houſewifes can tell you; and the moſt learned and accompliſhed Poets *and* Philoſophers *have been forc'd to condeſcend unto: who after all their ſubtil diſquiſitions into the Natures and Properties of them, have ever concluded with admiration of their Vertues and their* Knowledge, Order, Government, Art *and* Induſtry. *Therefore if you deſign an improvement of them beyond the Ordinary Method, it is beſt firſt to underſtand their Natures, and wherein the common and ordinary Method of providing for them proves deficient, and then endeavour to ſupply all thoſe defects and remove all obſtructions that ſtand in their way, that you may rather ingratiate your ſelf into their favour, by pleaſing them in every thing, than in the leaſt to thwart or croſs them. for which Love of yours to them, they will*

recompence you manifold. For their delight is in warm and dry Habitations, not narrow and tall, troubleſom to aſcend, but broad and ſhallow. For it was not the Love the Bees *bare to* Ludovicus Vives *that made them ſettle under the Leads over his Study in* Oxford, *and continue there above a hundred years; nor could a narrow place have afforded ſo great a Maſs of Honey as was taken thence upon renewing the Leads, Anno* 1630. *as Mr.* Butler *hath related: But it was the conveniency of the place being broad, warm and dry, that invited them to ſo long and continued a Succeſſion: In other places of the ſame nature I have known the like, although not for ſo long a time. And as the* Bees *delight in a cloſe and private Dwelling, ſo you muſt endeavour to preſerve them by the ſmallneſs and cloſeneſs of the Doors to keep out their enemies, which are not a few, and ſave them much of their labour in a continual watch for a great part of the year, and ſecure them in their Sleep at other times from being deſtroyed or deprived of their Wealth; yet not to ſtraiten them in their buſie times of gathering. Many other things you may obſerve that they naturally incline unto, wherein you may aſſiſt them.*

But

But be ſure not to plant any thing near, nor do any act that may be offenſive or Heterogeneal *to their Natures, whatſoever any adviſe you to. Nor do you feed your ſelves with vain imaginations, that they will fix their Combs to Frames of your Fancy, nor work when and where you pleaſe; nor deſert their Lechery, when you inſtruct them to the contrary, unleſs you have a more curious way of Caſtration than is yet diſcovered. Nor do you expect ſo vaſt a profit, as ſome have endeavoured to perſwade you unto, only to invite you to be a Purchaſer; leſt you reckon your Chickens before they be hatched. To aſſiſt you in theſe Diſquiſitions, I have put you to this ſmall charge: if it may be uſeful to you in proſecuting the Improvement of this little Animal, or in preventing your precipitating into Miſtakes and Errours by any* Ignis Fatuus, *I have my Deſire and Reward. But whether thoſe other new pretended Methods of vaſt Advantage, that are ſo dear bought, or theſe ordinary and cheap Inſtructions will ſucceed moſt to your Content and Profit, time and Experience only can demonſtrate; to which I muſt ſubmit. This nevertheleſs I can*

aſſure

assure you, that what I have in this small Tract positively affirmed, is either from Experience or good Authority; when peradventure what you pay dearer for, may be barely Suppositions; and yet at your own Cost to be Experimented.

CHAP.

CHAP. I.

Of the Univerſality of Bees and the Antiquity of their Colonies.

THE *Bee* is an Inſect more univerſally diſperſed thoroughout the World than any other that is known to be uſeful, and their melliſluous Colonies of very great Antiquity; *Sampſon* feeding on the Honey made by a Swarm of Bees that hiv'd themſelves in the Carcaſe of a *Lyon*, and *Jonathan* taſted of the Honey that dropped from a full *Comb* in a Wood. Prophane Authors alſo have not paſſed theſe Inſects over in ſilence, the moſt ancient Poets and Naturaliſts having written largely of them; as *Heſiod*, *Theliſius*, *Menecrates* and many others. *Ariſtomarchus* for fifty eight years did little elſe but keep *Bees*, and *Theliſius* employ'd his whole Life-time about them, as *Pliny* relates, *lib.* 11. *cap.* 9. *Honey* being much more in eſteem

ſteem in thoſe Ages than in theſe, *Sugar* having lately gained a Repute above it. For if you obſerve moſt of the ancient Inſtructions for Conſerving, Preſerving, or other Confectionating, *Honey* was then preſcribed where *Sugar* is now: So that thence it may be preſum'd that *Bees* were more nouriſh'd and cheriſh'd than in theſe later times. Such an opinion had the Ancients of Honey, that in caſe it were gathered by the *Bees* under a certain Conſtellation, that it would be ſo heavenly a ſweet Liquour that no one thing in the World might be comparable to it (*Pliny lib.* 11. *cap.* 14.) for the univerſal Cure of Diſeaſes, and reſtoring from Death to Life, like unto that Celeſtial and divine *Nectar* which they ſuppoſed did immortalize the Gods above.

There are ſcarce any parts in the known World, unleſs in the *Torrid Zone*, where theſe Inſects are not harbour'd; from *Aſia* through all *Europe* unto the *North America*, the vaſt Territories of *Ruſſia*, *Tartary* and other remote parts from the Southern Seas, being plentifully ſtock'd with them, *Sugar* not being there ſo uſual.

But how theſe numerous Inſects firſt came to be reduc'd into Colonies is uncertain, unleſs *Ariſteus* the Son of *Apollo* and King

King of *Arcadia* (as ſome report) was the firſt Diſcoverer of their Uſe and Order; a Work becoming ſo great a Perſon. But certain it is, that they in ancient times had their reſidence in hollow Trees in ancient Woods, as that of *Jonathan*'s finding Honey there ſeems to aſſert: and in other Concavities.

Oft in deep Caves (if Fame a truth report)
Low underneath they vault their Waxen
Court;
And oft diſcovered in a hollow Rock,
Or in the Belly of an aged Oak.
[Tranſlat. of *Virgil.*]

And at this day in many places it is not unuſual, to find Swarms in Trees and hollow places in Buildings, *&c.*

From whence their Swarms iſſuing out, it is probable that they were entic'd into Hives or other Receptacles prepared for them, which were firſt made of Rinds or Barks of Trees, in imitation, as may be ſuppoſed, of the hollow Trees they naturally placed themſelves in. Afterwards by degrees they began to make them of other Materials: And ſome before *Pliny*'s time, had made ſuch Hives, with that *fiſſile Glaſs* we call *Iſland-glaſs*, wherewith Ships

are glaz'd; and ſome of clear *Horn*, placed in Frames to diſcover the Bees Work, although in vain. Then they betook themſelves to the making of *Hives* of Oſier-twigs, and ſuch like, and dawb'd them; as yet in many places are uſed. From all which it may be concluded, That *Bees* preſerv'd in *Colonies*, and their increaſe by Swarms, is of that Antiquity, that no Hiſtory certainly mentions the firſt Invention of their management, unleſs you will credit that of *Ariſteus*.

CHAP. II.

Of the Breeding of Bees.

THat *Bees* are *Inſects*, and that the moſt, if not all, of *Inſects* are ſometimes engendred by Putrefaction, is not by any denied; *Bees* many times being engendred in the corrupted Carcales of Beaſts, according to the Poet;

Quatuor eximios præſtanti corpore Tauros, &c.

Four of his largeſt Bullocks forth he took,
As many comely heyfers never broke:

And

And when the ninth day bright Aurora *ſhew'd,*
He worſhips Orpheus, *and the wood review'd:*
A Wonder, *not to be believ'd, he ſees*
From the diſſolved Entrails, Swarms of Bees.
Which from the broken ribs reſounding fly,
And in a thick Cloud ſally to the Sky.
On a tall top branch they Cluſter now,
As Grapes hang dangling on the gentle bough. [*Ogilby's* Tranſl. of *Virg. Geor.* 4.]

To which end alſo the ſame Poet directs the very Method of ordering a *Steer*, ſome a *Heyfer*, others an *Ox*, limiting it to that *Species*, others producing other Inſects, that out of their Carcaſes Multitudes of Bees may be engendred. And it is not improbable that the Carcaſes of theſe Beaſts ſhould produce *Bees*, when we every Summer perceive, that other Beaſts that lie in the open Air do produce Inſects of other *Species*. But this of *Bees* may not ſo well ſucceed in theſe Northern, as in the more Southern Parts of *Europe*, where our *Poet* lived.

It was the Opinion alſo of the ſame *Poet* and of others, that *Bees* gathered their Seed out of certain Leaves and Flowers,

and carried them to their *Hives*, out of which their young were produc'd.

'Tis ſtrange that Bees *ſuch cuſtom ſhould maintain,*
Venus *to ſcorn, in wanton luſt diſdain*
To waſte their ſtrength; and without throws they breed:
But cull from Leaves and various Flowers their Seed. [The ſame Tranſlat.]

But this Opinion gains not much credit, nor is the other way practicable here. Therefore other ways for the Generation of theſe worthy Inſects are to be diſcovered. *Ariſtotle* himſelf thought it a work of great difficulty to diſcover it: And *Butler* in his *Feminine Monarchy* hath taken great pains about the Generation of the *Queens*, *Princeſſes*, *Drones* and *Honey-Bees*; to which *Curious Tract* we refer you, only from him ſhall obſerve, that *Bees* begin to Breed about the middle of *February*, if they are well provided for and the Spring be forward, elſe in *March*, by laying their *Eggs* or Seed at the bottoms of their void *Cells*; which by the warmth of the *Bees* ſitting on them (the ſeaſon of the year concurring) are converted into Worms or Grubbs, as moſt Inſects are before they fly. Thus by the

the old *Bees* ſitting on, warming, and feeding theſe Grubs, in about three weeks time, are a whole Set of theſe Inſects generated. And as the Spring comes on and Food increaſes, ſo do they increaſe their Breed, throughout the Months of *March*, *April*, *May*, *June* and *July* continually feeding their young, either with their old ſtock of Honey in bad Weather, or with new Food and Water, which they continually gather and carry to their young if the Weather permit them to fly abroad; or elſe in building Combs, as far as their room will ſuffer them and as it is for their own convenience. And thus do they build and breed until the end of *July* and ſometimes after. For when *Bees* have done ſwarming you may be confident they have done breeding and not before.

But whether the Drones are the *Males* or *Females*, or whether the Females, if the Honey-Bees are ſuch, before Droning time have conceived for the enſuing year, I had rather ſubmit to the Judgement of the moſt Experienced and Ingenious *Butler* than endeavour to diſprove it.

However from his Writings and every Ingenious *Bee-maſter*'s Annual Experience, I may ſafely conclude, that *Bees* do not ſpend their time in theſe Spring and Sum-

mer-months (whilſt they breed) in Luxury and Idleneſs, as by ſome is imagined; but to maintain and increaſe their *Colonies*, during that part of the year that yields them plenty of Matter out of the various Bloſſoms that are abroad, for the building of their Combs and feeding their young; until not only that Matter that is fit for thoſe uſes ceaſeth, but until the Leaves of the Oak and other *Honey-bearing* Leaves and Plants yield plenty of that *Nectar* or *Celeſtial Dew* that they lay up in ſtore for their Winter and Vernal Proviſion, and whereof their Maſters many times deprive them.

In vain therefore can it be expected, that this noble (yet indocile) Inſect, ſhou'd be either perſwaded to deſiſt from breeding ſooner than the ſeaſon of the year enforceth them; or to gather *Honey* before it is to be had, as ſome would inſinuate into us to believe.

It is not to be fear'd (in caſe it were in our power to prevent them) that *Bees* will ever overſtock themſelves; for were the *Hive* never ſo full of *Bees*, they would the ſooner fill their *Cells* with *Honey*, and the better live over the Winter. And after they have kill'd their *Drones*, which they uſually do before the gathering of their

Honey,

Honey, there is not an idle *Bee* nor a *Beggar* amongſt them.

CHAP. III.

Of Encreaſing and Swarming of Bees.

MAny Attempts have been made by ſeveral Ingenious Perſons, for the encreaſe of *Bees* without the troubleſom and hazardous way of *Swarming*; by giving them liberty in the Spring and Summer to ſwell their vaſt numbers into ſeveral Artificial *Hives*, ſet the one under or by the other. But when they are diſperſed into ſeveral *Hives* or *Boxes*, and near an equal proportion in each Box; yet when theſe *Hives* are ſeparated with the *Bees* in them, that part ſeparated from the old Stock will not thrive: A great Argument of their want of, and love unto their *King* or *Queen*, which doubtleſs remains amongſt his greateſt Riches in the firſt Stock; from which if part of them voluntarily ſeparate themſelves, by ſwarming with their Leader they ſoon betake themſelves to their work.

So that I could never obſerve from the Experience of any other, nor yet from my own,

own, although often and seriously attempted, that the Stocks or Colonies of *Bees* could by other wayes or means, than by their own voluntary Swarming, be ever multiplied or increased.

Therefore if you design many Stocks in your *Apiary*, or that you keep your ordinary stock only for increase wherewith to store your better Hives (hereafter discoursed of) which you keep for the sake of the *Honey*, be sure not to over-hive your Bees; for the less the *Hive* is, the oftner they swarm. For Bees over-hived rarely increase, unless it be an early Swarm and in a good Summer. And in good Summers, an early Swarm not over-hived may cast a Swarm it self: A sufficient argument that they spend not their time in Luxury and Idleness; and that although they have room enough in their *Hives* to make their *Combs* and store themselves with *Honey*, yet do they breed during the breeding-time, else could they not send forth a new Colony so soon; and cannot employ themselves in gathering *Honey* before it falls.

The sending forth of *Swarms* or *Colonies* doth not at all hinder or confound the *Bees*, it being but the work of two or three days to prepare for a *Swarm*: unless the badness of the weather prevent, which may

as

as well prevent them of working as of ſwarming. And after they are hived, they, the very next day, fall to making of Combs if the weather permit, and will in few days in fair weather have made large *Combs* and laid their Eggs or Seeds for another Breed. So that it cannot be reaſonably imagined that *Bees* are in any confuſion either before or after Swarming, or that they looſe any time beſides the day they ſwarm, as ſome have reported.

Bees uſually ſwarm twice in a year, ſometimes thrice, and (though but ſeldom) four times in an extraordinary good year; ſo that there is no danger of a decay of your Stock, unleſs through your own neglect, but a certain hope and confidence of taking a Swarm every year from each *Hive* to ſupply your new *Hives*, (we are hereafter to treat of) without any diminution to your breeding Stock; and as may alſo be preſumed, a ſtore left for a future encreaſe, and thoſe that are ſuperannuated left for you into the bargain, ſo that care be always taken not to over-hive them.

CHAP.

CHAP. IV.

Of the Bee-Hives or Houſes.

BEfore we did obſerve, that ſome of the ancient *Bee-maſters* had made *Hives* of tranſparent Matter, that they might the better diſcern the Work of the *Bees*; which it ſeems did not ſucceed according to expectation, elſe had they been more frequently uſed and approved of by the Reporters of them. *Butler* alſo condemns the uſe of them to that intent. And moſt true it is, that you cannot through the cleareſt Glaſs diſcern their working, nor yet their Combs, unleſs in *July* or *Auguſt* about Noon, when moſt of the Bees are abroad, and their Company begin to wax thin by their killing their Drones and death of their old *Bees*, which now through their conſtant and extraordinary labour have worn out their Wings, and fall far from home, uncapable of ever returning.

For oft their Wings are torn on Rocks abroad,
Freely ſpending their Lives beneath their Load:

In

In Flow'rs and making Honey ſuch a pride
They have, by which their Lives away do
glide. [Virgil.]

Then may you diſcern the ends of their *Combs* filled with tranſparent *Nectar*, but from that time they work not in making *Combs* nor yet in breeding.

Some have been of opinion, that by the light of theſe tranſparent Hives, theſe induſtrious Creatures do frame their work with more expedition and delight. To which I may anſwer, That in the darkeſt *Cells* or *Caves* they ſhape their Combs as curiouſly and artificially as in the moſt lightſome: And that in theſe that are tranſparent, the numerous labourers do ſo much obſcure their work, that you would think the Light of ſmall advantage to them. Therefore Glaſs for that purpoſe is of no great uſe.

It is likewiſe ſuppoſed that *Bees* take much pleaſure in the Light of theſe Hives, and ſo are thereby the more prompted to Induſtry: Whether that be ſo or not is difficult to determine.

But it is probable that an Hive made with large Squares of fine French or Dutch Glaſs, which is more tranſparent than the *Engliſh*, may not incommode the Bees; eſpecially

eſpecially if each Glaſs-window hath its Shutter over it, to cloſe it from the cold as the weather requires it. This I am ſure that it yields the Spectators much pleaſure and delight to ſee theſe nimble Creatures always in Motion and full of buſineſs whileſt the weather is hot, although not that expected and promiſed pleaſure of the view of their *Architecture.*

Now if you deſign really to improve theſe Animals to their greateſt height of advantage, you muſt obſerve their true inclinations, and follow them in that very Method that naturally they themſelves tend unto. As

1. In what place ſoever they deſign to inhabit, they begin their work above and work downwards.

2. In a Narrow *Hive* or place where their number is great, they are much impeded in their work; and in a broad Hive (ſo that their Number be proportionable) they begin many Combs according to their number, and do not ſo much hinder the one the other.

3. In a tall *Hive* or other *Cavity*, when their Combs are of any conſiderable length they become weary, becauſe they continually aſcend and deſcend in the narrow paſſages between the Combs; which is not only

only troubleſom, but a great hindrance to thoſe that are below. For I have always obſerved, that the uppermoſt part of the talleſt *Hives* are never without Bees; but at the coldeſt time of the day or night, then very full, and at the hotteſt times they are continually aſcending and deſcending To prove which I once cut off with a ſharp knife, the top of a ſtraw *Hive* and ſome part of the Combs, thinking by that means that they would as well have paſſed out that way as at the bottom of the *Hive*; over which I placed a Glaſs-hive made after Mr. *Hartlib*'s way, publiſhed in his Commonweath of *Bees*, that in caſe the Bees would have always aſcended, they might have then built in the new Hive over them: but they would not forſake their Combs.

4. The Bees always fix their work to the top of the *Hives*, and not to the Sticks only that are placed in the *Hive*, as by ſome is erroneouſly affirmed; thoſe Sticks being placed in the Hives by ſome to ſtrengthen them, that they ſhould not ſink with the weight of the Combs, by others to preſerve the Combs from breaking in caſe the *Hives* ſhould be leaned ſide ways or removed.

5. They always Swarm for want of Room.

6. A place cannot eaſily be over-ſtock'd with Bees, ſo that they have liberty to fly without incommoding the one the other; but if the Country be barren or wanting of Meadow, Water and Oaks, it may be overſtock'd.

Therefore make a *Box* or *Hive* of about eight Inches in height in the Inſide, and about twelve Inches broad, four ſquare, cloſe at the top and open at the bottom, with a Square of French or Dutch Glaſs on each ſide of about four or five Inches broad and five Inches deep, ſo groved in that no Air may paſs through the ſides of it; which may be prevented by fixing it in with Paſte or Cotton-wool. Let there be Shutters or Covers for each Square of Glaſs, to be added and taken off at pleaſure, by means of ſmall Buttons or Haſps; or you may make it without Glaſs if you pleaſe. Let there be two *Teeholes* or *Doors*, the one in the middle of the one Square-ſide at the bottom and the other in the middle of the other Square-ſide next adjoyning; that when this *Hive* ſtands with the one Door towards the South East, the other may be towards the South-Weſt each door being about three Inches long and one third part of an inch deep.

Then make another *Box* or *Hive* of the ſame

ſame depth, and about ſix or eight Inches broader, with two Squares of Glaſs on each ſide, two Doors on two of the ſides, that they may tend towards the ſame coaſts as the other: Let this Box be open at bottom alſo and cloſe at the top, except an hole in the Middle of about three Inches Diameter or Square. You may alſo make a third Box of about two Foot over or more, but of the ſame depth as the former; always encreaſing the Number of your Glaſs-ſquares, and Doors proportionable to the breadth of your ſides.

The Tops of theſe Boxes muſt be made of well-ſeaſon'd dry Wood, *Oak*, *Beech*, *Fir* or *Sugar-cheſt*, and made in Pannels joyned to prevent *ſhrinking*, *ſwelling*, *warping*, *ſplitting*, *&c.* the ſides with Studds and Pannels, as every Joyner can direct you. The top on the inſide may be either of the Board as it is, which is beſt; or if you doubt that it will ſhrink you may line it with a thin Matt, as I have ſeen it, or Plaſter it with fine Mortar made of Lime and Hair; always remembring to ſinge off the hair that may probably ſtick without the Mortar.

You may alſo make ſticks to hang in ſeveral places of the Boxes, of about half an Inch ſquare, fixed in the upper part of the

Box and extending to the bottom or very near it, the better to preſerve the Combs ſteady, and to help the *Bees* the eaſier to come to their Combs.

The firſt of theſe Boxes you may take a ſwarm into it at Swarming time, and ſet it in its place where it is to ſtand, leaving both the Doors open to the coaſts before mentioned; which if the Swarm be great will be quickly filled. When you perceive it near full add the ſecond *Box* under it, placing the firſt on the middle of the undermoſt, leaving the hole in the middle open. This may be done in the cool of the evening or in the night. The next day will part of the Bees take to their new *Box*, but the greater number continue their former employment until they have quite filled the upper. Then will they fall to work in the lower, and it's probable may fill that alſo the ſame Summer. As you find occaſion, you may add the third, and ſo a fourth or fifth, leaving the ſeveral Doors open in every Box whileſt you find there is occaſion; and as the weather grows colder and the *Bees* labour leſs, ſo you may leſſen their paſſages by ſmall Wedges, made flat and fit for that purpoſe; ſo you may keep their Glaſs ſhut as you think good. You may if you pleaſe

let

let your uppermoſt be a ſmall *Straw-hive*, which is as good, though not ſo comely or ſuitable, as that of Joyner's Work.

You may make a Frame of Wood on four Leggs, covered with Board or Lead, or what you pleaſe to place theſe *Boxes* in to preſerve them from the Wet, much whereof they will not endure. Let the drip be carried off from the two foremoſt ſides, leſt it drive too much on the *Hives* or *Bees*. This *Caſe* or *Bee-houſe* muſt ſtand *Arras*-wiſe with one Corner towards the South, that the Boxes alſo may the better ſtand that way. It muſt have doors on every ſide: the two Back-doors may be whole, and made to open only when you have occaſion to move, order or view your *Bees*. The two Fore-doors may be made in ſeveral parts; the upper third part to open upwards, ſupported, dripping forwards, by ſlender Iron-hooks, that the wind ſtir them not; theſe ſerve to keep the *Bees* and *Boxes* from *Rain* and *Sun*. The Under-doors may be made in halves, the one to hang on the Eaſt and Weſt-poſts, and the other on the South-poſts; thoſe on the South-poſts to be taken off the Hooks all the Summer, and in the Winter alſo, except when the *Bees* are to be totally confined. The Copper Cut will ſhew

you the form of the whole, as well *Boxes* as *Bee-house*.

From this Form or Model of keeping of *Bees* these Conveniencies and Advantages will certainly ensue.

1. The *Bees* have not far to ascend, their Habitation being but low.

2. They are not hindred for want of Room, nor for want of Entrance; their Doors are wide and on several sides of the *Hives* or *Boxes*, that they have great freedom of passage to and fro in the most busie time of their Gathering.

3. The *Bees* have the benefit of the *Sun* the whole day by this position of the *Hive*. In hot and dry weather the morning Sun is most necessary, to invite them abroad before the Dews are off the Flowers and Trees; and the evening Sun is necessary at all times.

4. Their entrance or doors may easily be straitned as the season of the year requires.

5. The *Boxes* themselves may in the Winter be secured from cold Winds and Rains, and the warm Sun may be excluded in the Winter-months, which shining on the *Hives*, tempts the Bees to come abroad to their ruine, and usually wakens them out of their Winter-sleeps; provoking

king them to expend their Provision, which in the Spring-time, if the weather prove unseasonable, they may want.

6. you may make use of your Glass-Windows at any time to view the numerous Colonies of these most laborious Animals.

7. These broad and flat Boxes will harbour with advantage, as many Bees as possibly can cohabit together in any one Colony, with all imaginable conveniency. And as they increase in Number, so may you increase your Boxes, until you find them at a stay: And then it is best to take them by the usual way of Smothering by the fume of Brimstone, admitted by some hole left at the bottom of the *Bee-house*, and kept stopp'd until you have occasion to use it for this purpose. For let not any one imagine, that their Honey can be taken from them and the Bees preserved; unless by some sorts of driving mentioned by *Butler* in his *Feminine Monarchy*, which also are not commended.

The Bees will never forsake their Combs that are full of Honey, as I have several times experimented, as well by cutting off the top of the *Hive* and placing another over it, as by inverting a *Hive* with the bottom upwards and placing another over

it; wherein the *Bees* built ſome *Combs*, yet by far the greater part of them kept to their former old *Hive*. Therefore all the boaſts and affirmations of what hath been done to that purpoſe have been vain, unleſs ſuch pretended Experimenters have met with a new *Species* of Bees.

CHAP. V.

Of the Gathering of Bees.

THeſe Animals ſpend their time, as long as the weather will permit and any thing will yield them matter to work upon, in gathering *Honey* either groſs or pure, or *Wax*, as their occaſions require and the ſeaſon of the year will afford them, according to the *Poet*,

Now when bright Sol *makes Winters Cold retreat,*
Behind the Earth and opens Heav'n with Heat,
Forthwith they riſe, and thorough Groves and Woods
Reap purple Flow'rs, and taſte the Cryſtal Floods:

By

By what inſtinct I know not; then they fly
To their own Courts, and their dear Progeny.
Next make their waxen Cells with greateſt Skill,
And thoſe they with Celeſtial Nectar *fill.*
[Tranſlat. of *Virg.*]

In the firſt of the Spring in *February*, if the weather be fair, they will abroad; and in that Month and the next, as the Spring is earlier and later, they gather much on the *Hazel*, *Dandelyon*, *Dazie*, *Violet*, *Withy*, *Alder*, *Daffodil*, *&c.* But above any other Tree they moſt affect the *Phyllirea*; one ſort of them beareth in thoſe Months an abundance of greeniſh Bloſſoms which yield great plenty of a Gummy Roſinny Sweat, which the Bees daily tranſport to their *Hives*, and yet it as often as the day reneweth. Nothing can be more acceptable to your Bees than a Hedge of this Tree about your Apiary, it being a very cloſe Fence green all the Winter, and yielding ſo great a quantity of acceptable Food in the uſual time of their greateſt Neceſſity.

Although theſe Trees are not now very common, yet are they eaſily propagated from Seeds, Layers or Slips. And I do aſ-

ſure you the effects of them to be as aforeſaid, and do not adviſe it to your loſs, as a certain Author did to place the *Elm* about your Apiary; a Tree that hath been always eſteemed injurious to Bees, not only by ancient and experienced Bee-maſters, but our modern *Botanicks*. Nor as hath been adviſed to plant the *Palm* tree, which neither Gold nor Silver can purchaſe to flouriſh in this Northern Clime.

The reſidue of the Spring do the Bees plentifully gather on the Bloſſoms of the *Black-thorn*, *Bullace*, *Plum*, *Cherry*, *Pear*, *Apple*, *Goosberry*, *Peach*, and many other Fruits and Flowers of the Gardens as well as of the Meadows.

Them let ſweet Gardens with freſh Flowers Invite. [Virgil.]

Thus from one Tree and Bloſſom to another do theſe induſtrious Inſects gather their food, being more groſs than the fine Honey they gather in the Summer for their Winter-ſtore; this being but the *Ambroſia*, as *Butler* terms it, ſerving only for preſent maintenance for themſelves and their Brood, for want of which (their old ſtock of fine Honey or *Nectar* being ſpent, and the weather bad that they cannot gather)

they

they often die. Therefore those Plants that afford them most of this early Food ought to be propagated about your *Apiary*.

When the *Spring* is a little past, and the Summer or *May-month* well entred, then the *Bees* prosecute their building, preparing Cells wherein to store up their Treasure for the succeeding Winter; not neglecting their Breeding, which they continue until Nature (their Mistress) prompteth them to decline it, and follow their work of gathering and storing up their *Nectar* whilest it is to be had. Every *Bee* hath his several Office, some to gather, others to build, *&c.* as the *Poet* observed.

For some provide, and by a Compact made,
Labour abroad; others at home are stay'd
To lay Narcissus *Tears, and yielding Gum,*
As the first Ground work of the Honey-Comb;
Which with stiff Wax they finish to their praise:
Others, the Nations hope, young Colonies raise.
Another part the purest Honey strives,
Until the liquid Nectar *crack the* Hives.

And

And some by Lot, attend the Gates t' inform
Approaching Show'rs, and to foretell a Storm;
To ease the laden, or imbattell'd drive,
The Drones, a slothful Cattel from the Hive. [Translat. of *Virg. Georg.* 4.]

After the Summer *Solstice* the pure *Nectar* rests on the Leaves of the *Oak*, and some other Trees, but most on the *Oak*; so long as these Dews fall, the *Bees* dayly lade themselves home with it; they not omittting their making of Combs, nor as yet their Breeding.

Besides from Trees, they gather much *Honey* from *Thyme*, chiefly to be nouriſhed in and near your *Apiary*, as the Poet adviſed.

Set Thime *about their* Hives, *and* Pines *remove*
From lofty Hills, for they such Plants do love. [Virg. Georg. 4.]

For Thyme yields much and very pure *Honey*. The *Pines* are only ſuppoſed to be for ſhelter, being ever green, in the room of which you may place *Phyllirea*, which is to be prefer'd, yielding both ſhelter and food.

After

After the Honey-dews are over, Bees gather but little; neither do they then build any more Cells, having no need of them, but fill at thoſe times all their Cells to the very top, not only with Honey, but all the Intervals with their Bodies.

So that if you ſhould ſeparate or drive the Bees from their Combs before the fall of the Honey-dews, and take the upper part, you would have but little advantage, by reaſon of the young Grubs you would have mixt with your impure Honey. And if you ſhould ſeparate or drive them after, you would not leave wherewith to maintain them over the Winter; and your driving of them, being a lingering Death, would prove greater cruelty to theſe Animals than a ſudden ſuffocation.

Not but that they in the Autumn continually employ themſelves in gathering very pure Honey in ſmall quantity, from the time of the Honey-dews, until the ſeverity of the Winter prohibits their Flight; but not enough to renew their Store for the ſucceeding Winter.

All which conſidered, you will ſoon be of the Poet's Opinion,

Omnibus una quies operum, Labor omnibus unus;
All rest at once, at once they labour all.
[Virgil.]

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